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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/521,995	09/12/2005	Chung Wah See	A36456-PCT-USA (072819.01)	1706
21003	7590	10/03/2008	EXAMINER	
BAKER BOTTS L.L.P. 30 ROCKEFELLER PLAZA 44TH FLOOR NEW YORK, NY 10112-4498			CHAWAN, SHEELA C	
			ART UNIT	PAPER NUMBER
			2624	
			NOTIFICATION DATE	DELIVERY MODE
			10/03/2008	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

DLNYDOCKET@BAKERBOTTS.COM

<b>Office Action Summary</b>	<b>Application No.</b> 10/521,995	<b>Applicant(s)</b> SEE ET AL.	
	<b>Examiner</b> SHEELA C. CHAWAN	<b>Art Unit</b> 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 January 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-37 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 January 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>11/9/06</u>   | 6) <input type="checkbox"/> Other: _____                          |

***DETAILED ACTION***

***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

***Preliminary Amendment***

- 2 Preliminary amendment filed on 1/18/05 has been entered.  
  
Claims 1-17 are canceled.  
  
Claims 18-37 are new claims.

***Information Disclosure Statement***

3. The information disclosure statement (IDS) submitted on 11/9/06, the information disclosure statement is being considered by the examiner.

***Drawings***

4. The Examiner has objected to drawings, fig 5a and 5b are missing from the drawings submitted on 1/18/05.  
  
Appropriate correction is required.

***Arrangement of the Specification***

5. As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:
  - (a) TITLE OF THE INVENTION.
  - (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
  - (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
  - (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.

(e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.

(f) BACKGROUND OF THE INVENTION.

(1) Field of the Invention.

(2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.

(g) BRIEF SUMMARY OF THE INVENTION.

(h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).

(i) DETAILED DESCRIPTION OF THE INVENTION.

(j) CLAIM OR CLAIMS (commencing on a separate sheet).

(k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).

(l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

### ***Claim Rejections - 35 USC § 101***

6. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 31- 35 are data structure and directed to non-statutory subject matter because there are not any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof.

### ***Claim Rejections - 35 USC § 101***

7. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

**Claim 36** is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter as follows. Claim 36 defines computer software

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embodying functional descriptive material. However, the claim does not define a computer-readable medium or memory and is thus non-statutory for that reason (i.e., "When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized" – Guidelines Annex IV). That is, the scope of the presently claimed can range from paper on which the program is written, to a program simply contemplated and memorized by a person. The examiner suggests amending the claim to embody the program on "computer-readable medium" or equivalent in order to make the claim statutory. Any amendment to the claim should be commensurate with its corresponding disclosure.

***Claim Rejections - 35 USC § 102***

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 18, 20-26, 28-30, are rejected under 35 U.S.C. 102(b) as being anticipated by (Vogel .D. et al., Listed in IDS filed on 11/9/06, "Microdac - a novel 12-15 approach to measure in situ deformation fields of microscopic scale" MICROELECTRON. RELIAB. (UK), MICROELECTRONICS AND RELIABILITY, NO. 11/12, vol. 36, 8 October 1996 (1996-10-08) - 1996, pages 1939-1942).

As to claim 18, Vogel discloses an image analysis method comprising the steps of:

i). capturing at least two primary images of at least one part of a sample in a first state using imaging means (fig 1, original pattern of N pixels page 1940, object state 1), the at least two primary images being captured at different focal planes (microelectronics is a imaging tools used to record small load and characterizes object pattern, with stable position and appearance in their images, a correlation based image processing algorithm is applied to determine a set of local pattern displacement between two object states, see paragraph principles of micro dac and deformation behavior of flip chip assemblies, page 1940 and 1941);

ii) capturing at least two secondary images of said at least one part of said sample in a second state using imaging means(fig 1, object 2 page 1940, object state 2 ), the at least two secondary images being captured at differing focal planes (microelectronics is a imaging tools used to record small load and characterizes object pattern, with stable position and appearance in their images, a correlation based image processing algorithm is applied to determine a set of local pattern displacement between two object states, see paragraph principles of micro dac and deformation behavior of flip chip assemblies, page 1940 and 1941) ;

iii) selecting one of said primary images that has the best definition of at least one feature therein using processing means ( fig 1, original pattern of N pixels page 1940, object state 1) ;

iv) selecting one of said secondary images which has the best definition of said at least one feature therein using processing means (fig 1, object state 2) ;

v) comparing the primary and secondary images selected in steps (iii); and (iv) in order to determine the displacement, if any, of a feature within said part of said sample ( using the measurement (iii and iv ) image displacement characteristics are calculated using the formula(1), see page 1940).

As to claims 20 and 28, Vogel discloses the method of claim 18, further comprising the step of determining a best focus sub-image from the plurality of second plurality of images in step (iv) (page 1940 , principles of microdac, a simple algorithm based on a bi-directional parabolic interpolation is used for subsequent subpixel shift evaluation accuracy of approximately 0.1).

As to claim 21, Vogel discloses the method of claim 18, further comprising the step of measuring an out-of-plane displacement of at least one feature by multiplying a number of steps moved by the imaging means in achieving a desired secondary image quality by the step size(page 1940 , principles of microdac, a simple algorithm based on a bi-directional parabolic interpolation is used for subsequent subpixel shift evaluation accuracy of approximately 0.1, page 1940, paragraph deformation behaviour of flip chip assemblies, page 1941).

As to claims 22 and 29, Vogel discloses the method of claim 18, further comprising the step of providing said primary images by using an initial image captured by the imaging means having a single nominal focal plane depth ( page 1940- 1941).

As to claims 23 and 30, Vogel discloses the method of claim 18, further comprising the step of using a composite image composed of sub-images each defining a focal plane depth to provide said primary images( page 1940- 1941).

As to claim 24, Vogel discloses the method of claim 18, further comprising the step of outputting to an output device at least one from the group consisting of a strain map, a deformation map, and a numerical measure of deformation (page 1940 principles of microdac).

As to claim 25, Vogel discloses the method of claim 18, further comprising the step of measuring a deformation of the sample in the (xy) plane to a sub-pixel resolution of at least 0.1 pixels( page 1940).

Regarding claim 26, it is interpreted and thus rejected for the same reasons as applied above in the rejection of claim 18).

### ***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation



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under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Claims 19 and 27, are rejected under 35 U.S.C. 103(a) as being unpatentable over (Vogel .D. et al., Listed in IDS filed on 11/9/06), as applied to claims 18, 20-26, 28-30, and further in view of Green (US.4,730,495, Listed in IDS filed on 11/9/06).

Regarding claim 19, Vogel discloses a microdac a novel approach to measure in suit deformation fields of microscopic scale (abstract, principles of microdac, page 1940). Vogel is silent about imaging with ultrasound transducer.

Green discloses ultrasonic reflex transmission imaging (abstract, column 3, lines 16- 20).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Vogel to include ultrasonic reflex transmission imaging. It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Vogel by the teaching of Green order to determine the features of echo and transmission type systems for improved imaging (as suggested by green at column 1, lines 45- 48).

Regarding claim 27, it is interpreted and thus rejected for the same reasons as applied above in the rejection of claim 19.

10. Claim 37, is rejected under 35 U.S.C. 103(a) as being unpatentable over (Vogel .D. et al., Listed in IDS filed on 11/9/06), in view of Green (US.4, 730,495).

Regarding claim 37, Vogel discloses an image analysis method comprising the steps of."

i). capturing at least two primary images of at least one part of a sample in a first state using imaging means(fig 1, original pattern of N pixels page 1940, object state 1), the at least two primary images being captured at different focal planes(microelectronics is a imaging tools used to record small load and characteries object pattern, with stable position and appearance in their images, a correlation based image processing algorithm is applied to determine a set of local pattern displacement between two object states, see paragraph principles of micro dac and deformation behavior of flip chip assemblies, page 1940 and 1941);

ii). capturing at least two secondary images of said at least one part of said sample in a second state using imaging means(fig 1, object 2 page 1940, object state 2 ), the at least two secondary images being captured at differing focal planes(microelectronics is a imaging tools used to record small load and characterizes object pattern, with stable position and appearance in their images, a correlation based image processing algorithm is applied to determine a set of local pattern displacement between two object states, see paragraph principles of micro dac and deformation behavior of flip chip assemblies, page 1940 and 1941) ;

iii). selecting one of said primary images that has the best definition of at least one feature therein using processing means (fig 1, original pattern of N pixels page 1940, object state 1);

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iv). selecting one of said secondary images which has the best definition of said at least one feature therein using processing means (fig 2, object 2); and  
v). comparing the primary and secondary images selected in steps (iii); and (iv) in order to determine the displacement, if any, of a feature within said part of said sample( using the measurement (iii and iv ) image displacement characteristics are calculated using the formula(1), see page 1940); and

determining a best focus sub-image from the plurality of second plurality of images in step (iv) (page 1940, principles of microdac, a simple algorithm based on a bi-directional parabolic interpolation is used for subsequent subpixel shift evaluation accuracy of approximately 0.1);

measuring an out-of-plane displacement of at least one feature by multiplying a number of steps moved by the imaging means in achieving a desired secondary image quality by the step size (page 1940, principles of microdac, a simple algorithm based on a bi-directional parabolic interpolation is used for subsequent subpixel shift evaluation accuracy of approximately 0.1, page 1940, paragraph deformation behavior of flip chip assemblies, page 1941);

further comprising the steps of measuring a deformation of the sample in the (xy) plane to a sub-pixel resolution of at least 0.1 pixels (page 1940), and

outputting at least one of the following to an output device: a strain map, a deformation map, a numerical measure of deformation( page 1940 principles of microdac).

Vogel is silent about imaging with ultrasound transducer.

Green discloses ultrasonic reflex transmission imaging (abstract, column 3, lines 16- 20).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Vogel to include ultrasonic reflex transmission imaging. It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Vogel by the teaching of Green order to determine the features of echo and transmission type systems for improved imaging (as suggested by green at column 1, lines 45- 48).

***Other prior art cited***

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Batra et al., (US.6,162,327) discloses multifunction tissue paper product.

Niedermann et al., (US. 5994160) discloses process for manufacturing micromechanical components having a part made of diamond consisting of at least one tip, and micromechanical components comprising at least one diamond tip.

Teitelbaum et al., (US. 3,866,473) discloses pressure measuring transducer.

Sinclair et al., (US.6567715 B1) discloses method and system for automated on chip material and structural certification of MEMS devices.

Dublin, Jr. et al., (US. 6110110) discloses apparatus and method for monitoring intraocular and blood pressure by non-contact contour measurement.

***Contact Information***

12 . Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sheela C Chawan whose telephone number is. 571-272-7446. The examiner can normally be reached on Monday - Thursday 7.30 - 6.00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Werner can be reached on 571-272-7401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Sheela C Chawan/

9/27/08

Primary Examiner, Art Unit 2624

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